

**WE CLAIM:**

1. A composition comprising:  
a combination of non-ionic emulsifiers with anionic emulsifiers comprising a media sufficiently acidic to initiate acid reactive polymerization, wherein said anionic emulsifiers are selected from the group consisting of alkane sulfates, alkane sulfonates, and phosphate esters; and, said non-ionic emulsifiers comprise polyoxyethylene alcohols.
2. The composition of claim 1 wherein said anionic emulsifiers comprise from about 8 to about 18 carbon atoms; and said polyoxyethylene alcohols comprise from about 8 to about 30 carbon atoms and from about 3 to about 50 moles ethylene oxide.
3. The composition of claim 1 wherein said polyoxyethylene alcohols comprise from about 13 to about 15 carbon atoms.
4. The composition of claim 1 wherein said polyoxyethylene alcohols comprise from about 3 to about 20 moles ethylene oxide.
5. The composition of claim 2 wherein said polyoxyethylene alcohols comprise from about 3 to about 20 moles ethylene oxide.
6. The composition of claim 3 wherein said polyoxyethylene alcohols comprise from about 3 to about 20 moles ethylene oxide.

1           7.     The composition of claim 1 wherein said polyoxyethylene alcohols are  
2 selected from the group consisting essentially of linear polyoxyethylene alcohols,  
3 polyoxyethylene alcohols comprising about 10 moles ethylene oxide, and a combination  
4 thereof.

1           8.     The composition of claim 2 wherein said polyoxyethylene alcohols are  
2 selected from the group consisting essentially of linear polyoxyethylene alcohols,  
3 polyoxyethylene alcohols comprising about 10 moles ethylene oxide, and a combination  
4 thereof.

1           9.     The composition of claim 3 wherein said polyoxyethylene alcohols are  
2 selected from the group consisting essentially of linear polyoxyethylene alcohols,  
3 polyoxyethylene alcohols comprising about 10 moles ethylene oxide, and a combination  
4 thereof.

1           10.    The composition of claim 1 wherein said combination comprises a blend  
2 of non-ionic emulsifier and anionic emulsifier at a ratio of about 50/50 to about 85/15.

1           11.    The composition of claim 2 wherein said combination comprises a blend  
2 of non-ionic emulsifier and anionic emulsifier at a ratio of about 50/50 to about 85/15.

1           12.    The composition of claim 4 wherein said combination comprises a blend  
2 of non-ionic emulsifier and anionic emulsifier at a ratio of about 50/50 to about 85/15.

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1            14.    The composition of claim 6 wherein said combination comprises a blend  
2    of non-ionic emulsifier and anionic emulsifier at a ratio of about 50/50 to about 85/15.

1            15.    The composition of claim 9 wherein said combination comprises a blend  
2    of non-ionic emulsifier and anionic emulsifier at a ratio of about 50/50 to about 85/15.

1 16. The composition of claim 1 wherein said media has a pH of about 1 or  
2 less.

1            17.    The composition of claim 2 wherein said media has a pH of about 1 or  
2    less.

1 18. The composition of claim 4 wherein said media has a pH of about 1 or  
2 less.

1           19.    The composition of claim 5 wherein said media has a pH of about 1 or  
2   less.

1        20.    The composition of claim 6 wherein said media has a pH of about 1 or  
2    less.

1 21. The composition of claim 7 wherein said media has a pH of about 1 or  
2 less.

1 22. The composition of claim 8 wherein said media has a pH of about 1 or  
2 less.

1 23. The composition of claim 9 wherein said media has a pH of about 1 or  
2 less.

1 24. The composition of claim 15 wherein said media has a pH of about 1 or  
2 less.

1 25. The composition of claim 1 wherein said alkane sulfates, alkane  
2 sulfonates, and phosphate esters comprise from about 8 to about 12 carbon atoms.

1 26. The composition of claim 3 wherein said alkane sulfates, alkane  
2 sulfonates, and phosphate esters comprise from about 8 to about 12 carbon atoms.

1 27. The composition of claim 4 wherein said alkane sulfates, alkane  
2 sulfonates, and phosphate esters comprise from about 8 to about 12 carbon atoms.

1 28. The composition of claim 6 wherein said alkane sulfates, alkane  
2 sulfonates, and phosphate esters comprise from about 8 to about 12 carbon atoms.

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30. A composition comprising:  
an emulsion comprising droplets comprising free hydrocarbons emulsified by a  
combination of non-ionic emulsifiers with anionic emulsifiers comprising  
a media sufficiently acidic to initiate acid reactive polymerization,  
wherein said anionic emulsifiers are selected from the group consisting of alkane  
sulfates, alkane sulfonates, and phosphate esters; and,  
said non-ionic emulsifiers comprise polyoxyethylene alcohols.

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32. The composition of claim 30 wherein said polyoxyethylene alcohols  
comprise from about 13 to about 15 carbon atoms.

1            33.    The composition of claim 32 wherein said polyoxyethylene alcohols  
2    comprise from about 3 to about 20 moles ethylene oxide.

1           34.    The composition of claim 32 wherein said polyoxyethylene alcohols are  
2   selected from the group consisting essentially of linear polyoxyethylene alcohols,  
3   polyoxyethylene alcohols comprising about 10 moles ethylene oxide, and a combination  
4   thereof.

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a' 1           35.    The composition of claim 30 wherein said media has a pH of about 1 or  
2   less.

1           36.    The composition of claim 34 wherein said media has a pH of about 1 or  
2   less.

1           37.    The composition of claim 30 wherein said droplets are encapsulated by an  
2   encapsulating material.

1           38.    The composition of claim 32 wherein droplets are encapsulated by an  
2   encapsulating material.

1           39.    The composition of claim 34 wherein said droplets are encapsulated by an  
2   encapsulating material.

1           40.    The composition of claim 37 wherein said encapsulating material is a  
2   silicate.

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1           42.     The composition of claim 39 wherein said encapsulating material is a  
2     silicate.

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1            44.        The composition of claim 43 wherein  
2            said polyoxyethylene alcohols comprise from about 8 to about 18 carbon atoms;  
3                        and  
4            said polyoxyethylene alcohols comprise from about 8 to about 30 carbon atoms  
5                        and from about 3 to about 50 moles ethylene oxide.

1            45.    The composition of claim 44 wherein said polyoxyethylene alcohols  
2    comprise from about 13 to about 15 carbon atoms.

1           46.    The composition of claim 45 wherein said polyoxyethylene alcohols are  
2   selected from the group consisting essentially of linear polyoxyethylene alcohols,  
3   polyoxyethylene alcohols comprising about 10 moles ethylene oxide, and a combination  
4   thereof.

1           47.    The composition of claim 43 wherein said media has a pH of about 1 or  
2   less.

1           48.    The composition of claim 45 wherein said media has a pH of about 1 or  
2   less.

1           49.    The composition of claim 47 wherein said droplets have a diameter of  
2   from about 3 microns to about 20 microns.

1           50.    The composition of claim 49 wherein said droplets have a diameter of  
2   about 10 microns or less.

1           51.    The composition of claim 48 wherein said droplets have a diameter of  
2   from about 3 microns to about 20 microns.

1           52.    The composition of claim 51 wherein said droplets have a diameter of  
2   about 10 microns or less.

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1           61.    The composition of claim 56 wherein said encapsulating material is a  
2   silicate.

1           62.    The composition of claim 57 wherein said encapsulating material is a  
2   silicate.

1           63.    A composition comprising:  
2   droplets comprising free hydrocarbons and emulsifier selected from the group  
3           consisting of non-ionic emulsifiers, anionic emulsifiers, and a  
4           combination thereof, said droplets being encapsulated by an  
5           encapsulating material;  
6   wherein said anionic emulsifiers are selected from the group consisting of alkane  
7           sulfates, alkane sulfonates, and phosphate esters; and,  
8   said non-ionic emulsifiers comprise polyoxyethylene alcohols.

1           64.    The composition of claim 63 wherein  
2   said anionic emulsifiers comprise from about 8 to about 18 carbon atoms; and  
3   said polyoxyethylene alcohols comprise from about 8 to about 30 carbon atoms  
4           and from about 3 to about 50 moles ethylene oxide.

1           65.    The composition of claim 63 wherein said polyoxyethylene alcohols  
2   comprise from about 13 to about 15 carbon atoms.

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1           66.    The composition of claim 64 wherein said polyoxyethylene alcohols  
2   comprise from about 3 to about 20 moles ethylene oxide.

1           67.    The composition of claim 65 wherein said polyoxyethylene alcohols  
2   comprise from about 3 to about 20 moles ethylene oxide.

1           68.    The composition of claim 63 wherein said polyoxyethylene alcohols are  
2   selected from the group consisting essentially of linear polyoxyethylene alcohols,  
3   polyoxyethylene alcohols comprising about 10 moles ethylene oxide, and a combination  
4   thereof.

1           69.    The composition of claim 65 wherein said polyoxyethylene alcohols are  
2   selected from the group consisting essentially of linear polyoxyethylene alcohols,  
3   polyoxyethylene alcohols comprising about 10 moles ethylene oxide, and a combination  
4   thereof.

1           70.    The composition of claim 63 wherein said combination comprises a blend  
2   of non-ionic emulsifier and anionic emulsifier at a ratio of about 50/50 to about 85/15.

1           71.    The composition of claim 67 wherein said combination comprises a blend  
2   of non-ionic emulsifier and anionic emulsifier at a ratio of about 50/50 to about 85/15.

1           72.    The composition of claim 63 comprising a pH of about 4 or less.

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1           73.    The composition of claim 67 comprising a pH of about 4 or less.

1           74.    A composition comprising droplets comprising free hydrocarbons, said  
2 droplets having a diameter of from about 3 microns to about 20 microns and being  
3 encapsulated by an encapsulating material.

1           75.    The composition of claim 74 wherein said encapsulating material is a  
2 silicate.

1           76.    The composition of claim 75 further comprising drill cuttings.

1           77.    A composition comprising a droplets comprising a quantity of free  
2 hydrocarbons, said droplets being encapsulated by an encapsulating material effective to  
3 maintain a leachate of about 0.5% or less of said quantity of free hydrocarbons.

1           78.    The composition of claim 77 wherein said leachate is about 0.25% or less  
2 of said quantity of free hydrocarbons.

1           79.    The composition of claim 77 wherein said leachate is about 0.05% or less  
2 of said quantity of free hydrocarbons.

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